

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number  
WO 2005/009072 A3

(51) International Patent Classification<sup>7</sup>: H04R 1/04,  
H03M 3/04, H04R 3/00

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:  
PCT/DK2004/000680

(22) International Filing Date: 8 October 2004 (08.10.2004)

(25) Filing Language: English

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(26) Publication Language: English

(30) Priority Data:  
60/525,039 24 November 2003 (24.11.2003) US

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- upon request of the applicant, before the expiration of the time limit referred to in Article 21(2)(a)

(71) Applicant (for all designated States except US): SONION A/S [DK/DK]; Byleddet 12-14, DK-4000 Roskilde (DK).

(72) Inventor; and

(75) Inventor/Applicant (for US only): POULSEN, Jens, Kristian [DK/DK]; Plantagevej 20, DK-2640 Hedehusene (DK).

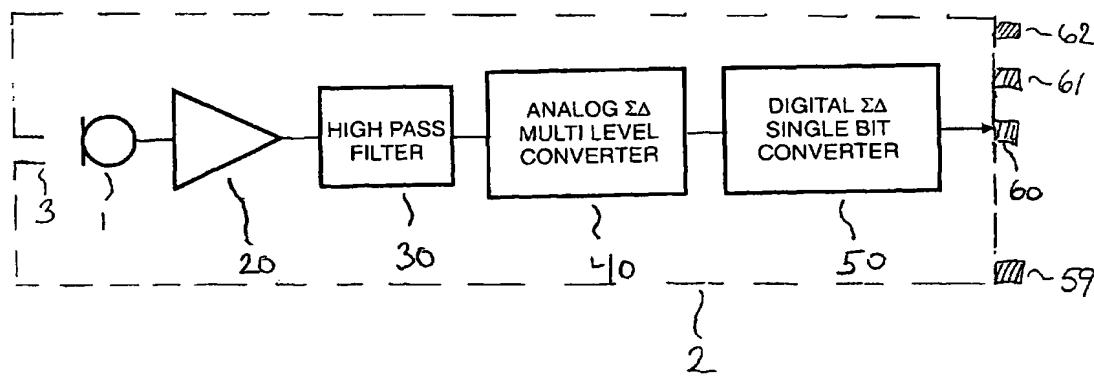
(74) Agent: PLOUGMANN & VINGTOFT A/S; Sundkrogs-gade 9, Post Office Box 831, DK-2100 Copenhagen Ø (DK).

(88) Date of publication of the international search report:  
24 March 2005

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MICROPHONE COMPRISING INTEGRAL MULTI-LEVEL QUANTIZER AND SINGLE-BIT CONVERSION MEANS



(57) Abstract: The invention relates to a digital microphone comprising an integral analog-to-digital converter based on a multi-level quantizer in cascade with a digital signal converter which is adapted to provide a single-bit output signal. Preferably, the analog-to-digital converter is a multi-bit delta-sigma A/D converter. Digital microphones in accordance with the invention are particularly well adapted for use in mobile terminals and compact portable communication equipment such as mobile or cellular phones, headsets, hearing prostheses etc.

WO 2005/009072 A3